CLAIMS

1. Method for three-dimensionally determining the refractive index of transparent or partially transparent layers, wherein the layer (1) is irradiated with polarised light at different angles of incidence (5), and wherein variations in the polarisation of the light are measured and evaluated as the light passes through the layer (1), characterised in
that the measurement is carried out through an immersion medium (3) which has a higher refractive index than air, and between which the layer (1) is inserted.

2. Method according to Claim 1,
characterised in
that the layer (1) is applied to a transparent substrate (2) and is measured on the substrate (2).

3. Method according to Claim 2,
characterised in
that an immersion medium (3) is used with a refractive index which is at least corresponds approximately to a refractive index of the substrate (2).

4. Method according to one of Claims 1 to 3,
characterised in
that the layer (1) is measured in a chamber (6) into which is inserted a liquid immersion medium (3).

5. Method according to one of Claims 1 to 3,
characterised in
that the immersion medium (3) is formed by two solid body halves between which the layer (1) is inserted.

6. Method according to Claim 5,
characterised in
that two hemispheres or hemi-cylinders are used as the immersion medium (3).

7. Method according to Claim 6,
characterised in
that the two hemispheres or hemi-cylinders are supported by capillary forces on the layer (1) and the substrate (2).

8. Method according to one of Claims 1 to 7,
characterised in
that the layer (1) is irradiated simultaneously or consecutively with light of different wavelengths in order to determine the complex refractive index.

9. Method according to one of Claims 1 to 8 for measuring layers for flat screens, optical data storage or optical wave guides.

10. Device for carrying out the method according to any one of Claims 1 to 9, with a transmission measuring device for measuring a variation in polarisation as the polarised light passes through a sample and a rotating device for the sample,
characterised in
that the device comprises an immersion medium which has a higher refractive index than air, and a support for the immersion medium (3) is provided and is designed so that the sample can be inserted between the immersion medium (3) and can be rotated in or with the immersion medium (3) relative to a beam axis of the polarised light.

11. Device according to Claim 10,
characterised in

that the support is a chamber (6) for a liquid immersion medium (3), which has inlet and outlet surfaces for the polarised light.

12. Device according to Claim 11,
characterised in
that the chamber (6) is designed in a cylindrical shape and is connected to the rotating device so that it can be rotated by means of the rotating device.

13. Device according to Claim 10,
characterised in
that the support is designed for receiving and fixing two solid body halves forming the immersion medium (3) and is connected to the rotating device.